
THINKING SKILLS

9694/23

Paper 2 Critical Thinking

May/June 2019

MARK SCHEME

Maximum Mark: 45

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

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This document consists of **8** printed pages.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

the specific content of the mark scheme or the generic level descriptors for the question
the specific skills defined in the mark scheme or in the generic level descriptors for the question
the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
marks are awarded when candidates clearly demonstrate what they know and can do
marks are not deducted for errors
marks are not deducted for omissions
answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Question	Answer	Marks
1(a)	It meant that they could not be sure that the body was Diesel's [1], although his identity may have been sufficiently established by the personal effects [1]. No autopsy could be done [1], which may have revealed significant evidence e.g. blows to head by a third party [1]. However, the body may have been in too decomposed a state for any evidence indicating foul play to remain [1]. It is possible (though unlikely) that the crew were part of the conspiracy and only claimed that they had dragged Diesel's body from the sea [1].	3
1(b)	It suggests that the diesel engine was something that benefited the oil industry eventually [1]. This meant that they would lack a motive to kill Diesel or prevent the development of his engine [1]. However, it remains a fact that Diesel was a critic of the oil industry [1] and saw his engine as an alternative to the oil-fuelled internal combustion engine [1]. Also, it may not have been apparent in the early stages that the diesel engine could be powered by oil [1]. If Diesel had remained living, he would probably have been a major public figure promoting renewable fuels over oil [1].	3
1(c)	It is useful insofar as it gives a motive for the German government to assassinate Diesel [1]. However, if the German government thought Diesel's engine was such an advantage to the enemy it is difficult to see why they simply didn't also make him an offer to use it [1] / warn him that he would be charged with treason if he went ahead [1]. It also gives a motive for commercial rivals to possibly murder diesel [1], if they coveted the contract with the British for themselves [1]. It also suggests that Diesel had reason to believe his prospects were looking better which would have deterred him from suicide [1].	3

Question	Answer		Marks
1(d)	Level 3 5–6 marks	A strong answer, which provides a reasoned argument including thorough evaluation of all or most of the evidence to support an acceptable conclusion in terms of probability and evaluates the plausibility of at least one alternative conclusion.	6
	Level 2 3–4 marks	An answer which evaluates some of the evidence, draws an acceptable conclusion in terms of probability and may mention the plausibility of at least one alternative conclusion.	
	Level 1 1–2 marks	A weak answer, which refers to some of the evidence, possibly including a simple evaluative comment. The conclusion may be unstated or over-stated.	
	Level 0 0 marks	No credit-worthy material.	
	<p>Indicative content</p> <p>The possible conclusions are:</p> <p style="padding-left: 40px;">Diesel accidentally fell overboard. Diesel committed suicide. Diesel was murdered by agents of the oil industry. Diesel was murdered by agents of the German government.</p> <p>The first conclusion is unlikely given the sea conditions. There are problems with either of the murder theories in terms of a clear motive to take such drastic action. Given the timing of the death just before Diesel needed to repay loans and his action in leaving his wife some cash, suicide is likely. He may have wanted to disguise this hence made it look like he had been preparing for bed.</p> <p>Notes for the guidance of markers</p> <p>Simple supported conclusion 1 (if no conclusion cap at Level 2)</p> <p>+ simple consideration of alternative +1 AND reasoned rejection of alternative +1</p> <p>+ explicit use of some (3 or fewer) sources of evidence +1 OR explicit use of all or most (4 or more) sources of evidence +2</p> <p>+ critical evaluation of evidence +1 or (more than one case) +2 + good inferential reasoning +1 or (more than one case) +2</p>		

Question	Answer	Marks
2(a)	At first sight it is inconsistent with this view, as one would expect a corresponding decline in smoking if vaping was being taken up by smokers as an alternative [1]. However, it would remain true that it offers an alternative even if it is not being used in this way [1]. Also, these figures only apply to China [1]. Those people who are vaping in China might have started cigarette smoking if e-cigarettes had not been available [1]. Cigarette smoking in China might have increased if vaping had not been offered as an alternative [1]. The increase in vaping may be from people who would not have considered taking up smoking [1].	3
2(b)	The evidence that 'nicotine has a harmful effect on brain development in young people' [1] is unlikely to be a concern for older vapers [1]. The concern about flavouring agents being over-heated [1] would not be a concern for vapers who use their equipment appropriately / have better equipment that does not overheat / use only liquids without flavouring agents in [1]. All the concerns about nicotine [1] would be irrelevant to vapers who use nicotine-free vaping liquids [1].	4
2(c)	<p>Increased awareness</p> <p>Increased availability</p> <p>Advertising for vaping over this period</p> <p>Prices went down over this period / prices of cigarettes went up</p> <p>More celebrity endorsement of the product</p> <p>Improved technology leading to a better product</p> <p>Vaping became more fashionable over this period</p> <p>Increased impact of health campaigns against tobacco smoking</p> <p>Spread of information that vaping was safe over this period</p> <p>As with all new products, the majority hold back while the early-adopters 'experiment' and then more people start to buy the product</p>	2

Question	Answer		Marks
2(d)	Level 3 5–6 marks	A reasoned argument, which uses and evaluates all or most of the evidence provided.	6
	Level 2 3–4 marks	A simple argument, which uses and/or evaluates evidence.	
	Level 1 1–2 marks	A weak answer, which makes some correct reference to evidence but consists of opinion and/or assertion rather than argument or a weak argument which makes no reference to evidence.	
	Level 0 0 marks	No credit-worthy material.	
	<p>Indicative content</p> <p>Source A suggests vaping is a healthier alternative, but not from a medical source and lacks detailed evidence. Furthermore, it seems likely that Source A has a vested interest to promote the product to generate sales.</p> <p>Source B suggests it is too early to judge the health effects of vaping, but, it highlights the concerns about the effects on young people.</p> <p>Source C gives a great deal of evidence that vaping is harmful to health, however some evidence cited only applies to young people / misuse of vaping.</p> <p>The degree of harm compared to cigarettes is not assessed.</p> <p>Source D suggests vaping will be exploited by cigarette manufacturers as a source of profit using similar marketing methods.</p> <p>However, this does not necessarily mean vaping is harmful to health.</p> <p>Source E shows the increased popularity of vaping, but this, in itself, is not relevant to the issue of harm to health.</p> <p>There is scope for personal thinking by exploring the issue of whether addiction, in itself, is undesirable even if there are no negative health effects.</p> <p>Notes for the guidance of markers</p> <p>Simple supported conclusion 1 or nuanced conclusion 2</p> <p>+ <u>use</u> of 1 or 2 sources +1 or <u>use</u> of all or most (3 or more) sources of evidence +2 <i>not just mentioning or summarising or comprehension</i></p> <p>+ critical evaluation of evidence +1 or (more than one case) +2</p> <p>+ good inferential reasoning +1 or (more than one case) +2 <i>not speculation</i></p> <p>+ personal thinking +1</p>		

Question	Answer	Marks
3(a)	<p><i>2 marks:</i> (however,) we should not worry about it. <i>1 mark:</i> At some point we will have to abandon this idea; however, we should not worry about it.</p>	2
3(b)	<p><i>1 mark for each of the following, to a maximum of 3 marks:</i></p> <p>it is unnecessary for the maintenance of social life. governments will be able to increase other payments. People should keep on working. Eventually the concept of retirement in old age will become redundant. Retirement is not the solution to all of life's problems that people imagine it to be.</p> <p><i>Allow one additional element or one significant omission in each case. If more than three answers are offered, mark the first four only.</i></p>	3
3(c)	<p><i>Marks for each evaluative point as follows, up to a maximum of 5 marks:</i></p> <p><i>2 marks:</i> Valid evaluative point, clearly expressed. <i>1 mark:</i> Weak attempt at a valid evaluative point.</p> <p><i>Paragraph 1</i> <i>Assumption:</i> people reached old age in past societies. Irrelevant appeal to history. (May be expressed as an assumption.)</p> <p><i>Paragraph 2</i> <i>Assumption:</i> money paid in other benefits to elderly workers who would otherwise have been retired will be less than the cost of pensions. <i>Restriction of options:</i> to either keeping retirement at the present age or abolishing it – governments might be able to solve the problem by increasing the retirement age. (Not constrained just to para 2.) Incoherence: if governments cannot afford pensions, then they will not 'save' the cost of them. Allow – <i>Assumption:</i> old age pensions can only be government funded.</p> <p><i>Paragraph 3</i> <i>Assumption:</i> work involves exercise. <i>Assumption:</i> work cannot be damaging to health. False dichotomy between being slumped in front of television and going out to work.</p> <p><i>Paragraph 4</i> Inconsistency with previous reasoning. If paying retirement pensions is not sustainable it is difficult to see how paying an income to everybody will be sustainable. The reasoning in this paragraph is inconsistent with the rest of the reasoning.</p> <p><i>Paragraph 5</i> <i>Straw man:</i> no one would argue that retirement is a solution to all of life's problems.</p>	5

Question	Answer	Marks								
3(d)	<table border="1" data-bbox="320 248 1326 745"> <tr> <td data-bbox="320 248 491 450">Level 3 4–5 marks</td> <td data-bbox="491 248 1326 450">Developed, coherent argument. Reasons strongly support conclusion. Development may include intermediate conclusion or apt examples. Simply structured argument – 4 marks. Effective use of IC etc. – 5 marks.</td> </tr> <tr> <td data-bbox="320 450 491 546">Level 2 2–3 marks</td> <td data-bbox="491 450 1326 546">A simple argument. One reason + conclusion – 2 marks. Two or more separate reasons + conclusion – 3 marks.</td> </tr> <tr> <td data-bbox="320 546 491 642">Level 1 1 mark</td> <td data-bbox="491 546 1326 642">Some relevant comment.</td> </tr> <tr> <td data-bbox="320 642 491 745">Level 0 0 marks</td> <td data-bbox="491 642 1326 745">No relevant comment.</td> </tr> </table> <p data-bbox="308 779 1267 842"><i>Maximum 3 marks for wrong conclusion or if conclusion is implied but not stated.</i></p> <p data-bbox="308 846 1082 878"><i>No credit for material merely reproduced from the passage.</i></p> <p data-bbox="308 913 676 945">Specimen level 3 answers</p> <p data-bbox="308 981 577 1012"><i>Support (131 words)</i></p> <p data-bbox="308 1048 1321 1249">Prolonging life has always been a key role of medical science. It would be ludicrous to argue that there is an age at which the pursuance of this goal should be regarded as complete. Whilst a life span of, for example, 150 years seems extraordinary to us, a life span of 80 years, which is now regarded as quite normal, would have seemed extraordinary to somebody living in the middle ages.</p> <p data-bbox="308 1285 1334 1415">So much more could be achieved by people if they had a longer life span. This is particularly the case of highly talented people. What breakthroughs would Einstein have made in science or what great compositions would Beethoven have produced if they had both lived longer?</p> <p data-bbox="308 1451 1225 1482">So a key goal of science should be to increase human life expectancy.</p> <p data-bbox="308 1518 609 1550"><i>Challenge (123 words)</i></p> <p data-bbox="308 1585 1302 1751">Scientific research should be devoted to making peoples' lives healthier and more prosperous rather than longer. Although life expectancy has increased this has not been accompanied by the prolonging of health. Increased life expectancy often means a long period of pain, illness and discomfort in the last years of life.</p> <p data-bbox="308 1787 1331 1953">Society is already straining to deal with the numbers of people on the planet. Increasing life expectancy will exacerbate this problem. Better to have a shorter life span on a sustainable planet which can provide a reasonable standard of living for all rather than an increasingly unsustainable and poverty-stricken planet collapsing under the weight of numbers.</p> <p data-bbox="308 1989 1273 2020">So a key goal of science should not be to increase human life expectancy.</p>	Level 3 4–5 marks	Developed, coherent argument. Reasons strongly support conclusion. Development may include intermediate conclusion or apt examples. Simply structured argument – 4 marks. Effective use of IC etc. – 5 marks.	Level 2 2–3 marks	A simple argument. One reason + conclusion – 2 marks. Two or more separate reasons + conclusion – 3 marks.	Level 1 1 mark	Some relevant comment.	Level 0 0 marks	No relevant comment.	5
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